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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/562,681	08/21/2006	Robert Yaw Gyamfi Andoh	P08829US00/MP	4066
881	7590	06/08/2009	EXAMINER	
STITES & HARBISON PLLC			MELLON, DAVID C	
1199 NORTH FAIRFAX STREET				
SUITE 900			ART UNIT	PAPER NUMBER
ALEXANDRIA, VA 22314			1797	
			MAIL DATE	DELIVERY MODE
			06/08/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/562,681	ANDOH ET AL.	
	Examiner	Art Unit	
	DAVID C. MELLON	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 12 May 2009.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1,2,4,5 and 7-24 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1,2,4,5 and 7-24 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 5/12/2009 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:
 - The specification does not disclose section headings delineating each section of the disclosure from the previous section of the disclosure, creating an ambiguity of what is being discussed and where in the specification. Please see MPEP 608.01(a) for appropriate section headings in a patent application specification.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
3. **Claims 1-2, 4-5, and 7-25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Claim 1 recites the limitation "the outlet opening" in the last line of the claim. Since there is a "liquid outlet" specifically claimed as well as "an outlet opening", the claim lacks antecedent basis. Inherently, the structure of "liquid outlet" would implicitly define an "outlet opening". Accordingly, there have been two outlet openings claimed, one implicitly and one explicitly. It is unclear which "outlet" is intended to be referred to by Applicant. Is it an outlet at the bottom of the device, or an outlet duct from one of the

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inner and outer regions? There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1 and 13-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Druffel (USP 4,298,465).

Regarding claim 1, Druffel discloses an improved self contained apparatus for separation of fluids (Abstract) in figures 1-3 comprising:

- A vessel (10) having a cylindrical outer wall (see wall of 10 in figure 1)
- An inner partition (64 - flow director)
- An inlet (36 – inlet passage)
- An outlet (18 – outlet port)
- A frustoconical base (see base of 10 terminating in drain valve 90 forms a frusto-conical shape) which converges to a downward outlet opening (90 – drain valve) and the outlet opening communicates with the outer separation region beneath the inner partition (see clearly shown in figures)
- Wherein the inner separation region is annular (clearly shown as annular) and is closed at a lower end thereof (partition 64 closes the region at the lower end before the bottom end, thus while it is open on the bottom in

spots, it is closed just superior to the bottom and this reads on the claim limitation “lower end”)

- The inner separation region being defined at an inner periphery thereof by a central cylindrical partition (central chamber 86), the interior of which is open at a lower end thereof to provide access to the bottoms outlet (the wall is formed of the inner wall of filter cartridge 64 which is porous and thus open at a lower end but sealed at the bottom by plate 88, the open/porous lower end feeds through around the tabs to outlet portion)

Regarding claims 13-15, Druffel further discloses a replaceable filter cartridge which substantially fills the inner separation region (filter cartridge 76).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

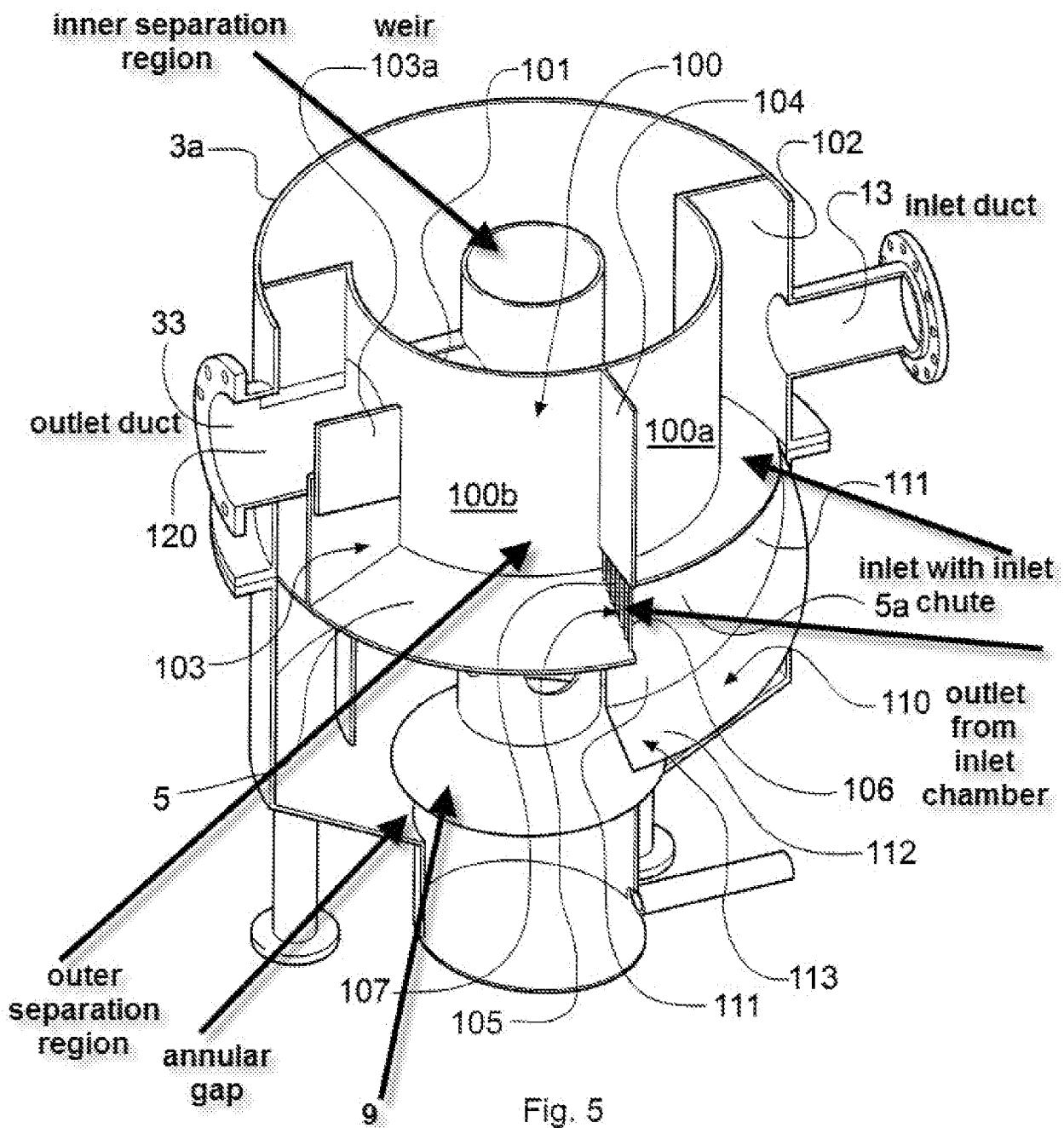
7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1-2, 4-5, 7, 9-12, and 16-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andoh et al. (WO 00/62888) and in view of Smisson (USP 5,116,516).



Regarding claims 1-2, Andoh et al. discloses a hydrodynamic separator for separating material from a liquid (abstract) in figures 1, 4-6 comprising:

- A vessel (2) having a cylindrical outer wall (3)

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- An inner partition (chamber – 31)
- An inlet (13) opening into the outer separation region (see annotated figure 5)
- An outlet (33) opening into the inner separation region (see annotated figure 5)
- A frustoconical base (4) which converges to a downward outlet opening (8) which outlet opening (8a) communicates with the outer separation region beneath the inner partition (clearly shown in fluid communication)
- Wherein the inner separation region is annular (it is round and thus annular) and is closed at a lower end thereof (P12/L18-22 - “the conical member 9 may be solid” which would imply that it would close a portion of all of a lower end of the inner separation region).

Andoh et al. does not explicitly set forth the structure of a central cylindrical partition open at a lower end thereof to provide access to the outlet opening.

Smisson discloses a low energy separator for taking solids from a mixed liquid (Abstract) in figure 2 wherein there is an outer separation region with a frustoconical base formed from wall (4) of device (2) with an inner separation region formed within walls 16 with a central cylindrical portion (24) which has a bottom outlet via (8) to the bottoms outlet of the vessel.

Andoh et al. and Smisson are combinable because they are concerned with the same field of endeavor, namely that of liquid purification.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the inner separation region of Andoh et al. to further include a central cylindrical partition with an outlet in the bottom feeding and in communication with the outlet opening of the bottom of the vessel as taught by Smisson for the purpose of allowing for light solids to be separated to the bottom outlet immediately prior to tangential fluid exiting the system.

Regarding claims 4 and 5, Andoh et al. further discloses the inner separation region communicates with the outer separation region through at least one aperture formed in the inner partition (openings 11 or also interpreted as opening at 9) shown adjacent the lower end of the inner partition.

Regarding claim 7, Andoh et al. further discloses the aperture comprises a circumferential gap between the inner partition and a wall closing the lower end of the inner partition (gap between 9 and wall 4).

Regarding claims 9-11, Andoh et al. further discloses the inner separation region is closed at its lower end by a downwards diverging, extending beyond the partition wall (9 – frustoconical base member, shown diverging downwards extending beyond partition 31, see also P12/L18-21 – “solid”).

Regarding claim 12, Andoh et al. further discloses that the wall (9) terminates short of the frustoconical base of the vessel, creating a gap between the base and the wall (see annotated figure 5).

Regarding claims 16 and 17, Andoh et al. further discloses an outlet duct that extends from the liquid outlet through the outer wall of the vessel and is inline with the

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inlet duct which extends through the outer wall (see annotated figure 5, inlet and outlet 13 and 33 extending through vessel wall and inline with one another).

Regarding claim 18, Andoh et al. further discloses an inlet disposed below the inlet duct (see annotated figure 5) with an inlet port to discharge inlet flow into the vessel in a tangential direction to the cylindrical outer wall (inlet chute is wrapped around the cylindrical wall).

Regarding claim 19, Andoh et al. further discloses that the inlet and outlet ducts are disposed at an upper region of the vessel (see figure 5).

Regarding claim 20, Andoh et al. further discloses the inlet duct communicates with the inlet through a chamber, the chamber having a bypass means for allowing flow from the chamber to the inner separation means (flow goes through inlet chute past the outlet from the inlet chamber and over weir 103 into the outlet duct which feeds into the inner chamber, see also P15/L15-24).

Regarding claim 21, Andoh et al. further discloses the inlet port is provided in the wall of an inlet chute which extends downwardly from the chamber (P15/L15-24, screen 105 leads downward into the lower portion of the outer chamber).

Regarding claim 22, Andoh et al. further discloses the bypass means has a weir disposed between the chamber and the inner separation region with the overflow edge higher than the inlet port (weir 103a).

Regarding claims 23 and 24, Andoh et al. further discloses that the inner partition (31) is cylindrical (shown in annotated figure 5) and that the inner partition is coaxial with the outer wall (see figure 4).

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Andoh et al. (WO 00/62888), Smisson (USP 5,116,516), and further in view of Galletti (USP 4,271,019).

Regarding claim 8, modified Andoh et al. discloses all of the claim limitations as set forth above. Andoh et al. does not explicitly set forth that there is a screen provided to each aperture.

Galletti discloses a filter unit with an outer casing with an inlet and discharge valve and a perforated chamber covered by a filter element (Abstract) in figure 1. The perforated apertures (7) are covered by a mesh filter element 9 (C3/L10-20).

Andoh et al. and Galletti are combinable because they are concerned with the same field of endeavor, namely that of fluid filtration.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the hydrodynamic fluid separator of Andoh et al. such that the apertures (11) of Andoh et al. are covered by a filter screen as taught by Galletti for the purpose of keeping solids out of the final separation area prior to fluid discharge to improve separation quality.

Response to Arguments

11. Applicant's arguments filed 5/12/2009 have been fully considered but they are not persuasive.

- Applicant argues the specification objection regarding section headings and specifically the requirements of Rule 1.77.

The Examiner respectfully disagrees with Applicant's argument. As the specification does contain the sections as denoted by the MPEP in 608.01(a), it is accordingly confusing to one having ordinary skill in the art upon reading the instant specification due to the lack of conventionally used and preferred formatting. The sections lacking headings leads to ambiguity as to where specific portions are, for instance discussion of the prior art and summary of the invention as well as from summary of the invention to detailed description of the invention. Furthermore, Applicant has not established any motivation for not adopting to the conventional and preferred format for a patent specification as set forth in 37 CFR 1.77. Additionally, the rule does not "suggest" but rather indicates that it is the "preferred" format. Accordingly, the objection to the specification is maintained.

- Applicant alleges Andoh et al. does not have a closed bottom of the inner separation region based on the term "communicates"

The Examiner respectfully disagrees. On P12/L18-22, Andoh et al. specifically establishes that "conical member 9 may be solid", which accordingly, would imply that it would close off tubular member 10 when solid. Additionally, since the hollow feature is illustrated as being open, the solid one would be closed. Additionally, the specification indicates that it "communicates" with the tubular member. In this instance, it is understood that since the device is affixed, it would inherently "communicate" in some manner. There is no requirement established in the specification that fluid communicates between 9 and 10 and through 9. Furthermore, Applicant has not provided evidence to the contrary of Examiner's interpretation of the reference.

- Applicant alleges Andoh et al. does not disclose a central member.

The Examiner notes that this argument is now moot in view of the new grounds of rejection as set forth above.

- Applicant alleges that tabs 80 of Druffel do not close the outer region of the interior of flow director 64 and that thus Druffel fails to disclose a closed at its lower end inner separation region.

The Examiner respectfully disagrees. The claim does not require "lower end" to be at the bottom of the device based upon an axis. Furthermore, there is no axis claimed to orient the device nor is the "lower end" claimed explicitly to define it in such a way to overcome rejection by Druffel. Accordingly, the claimed language "lower end" has been interpreted to mean the "lower end of the side walls" which is consistent with the broadest reasonable interpretation absent specific language defining what the "end" and "lower" specifically are intended to mean.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID C. MELLON whose telephone number is (571)270-7074. The examiner can normally be reached on Monday through Thursday 7:00am-4:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571) 272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tony G Soohoo/
Primary Examiner, Art Unit 1797

/D. C. M./
Examiner, Art Unit 1797